#1

Attorney's Docket No.: 11145-023US1

FACSIMILE

ATTN: JEREMY FLEMING

FAX NO: (703) 305-2919

Number of pages including this page 44

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PCT SPECIAL
PROGRAMS OFFICE

Applicant : Leif Andersson et al.
Serial No. : 10/070,794
Filed : March 8, 2002
Art Unit :
Examiner :

FACSIMILE COMMUNICATION

Title : VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

Commissioner for Patents
Washington, DC 20231

Dear Mr. Fleming:

As you discussed today with my secretary, Kathy Sanderson, attached to this facsimile communication cover sheet is a copy of the Response to Notification of Missing Requirements which was filed with the U.S. Patent and Trademark Office on October 4, 2002. You will note from the express mail receipt that this response was mailed to Box Sequence, U.S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202.

Respectfully submitted,

Date: January 7, 2003

Monica McCormick Graham, Ph.D.
Reg. No. 42,600

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Suite 3300
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60121273.doc

MMG

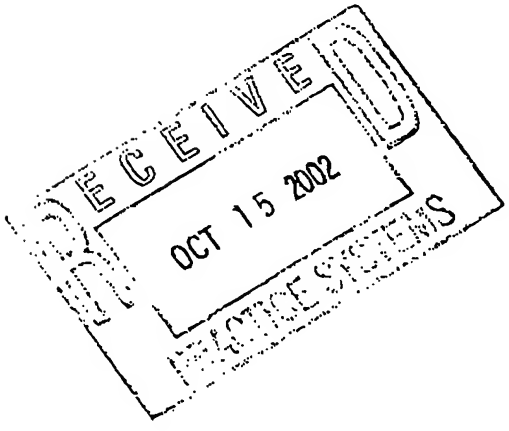
PTO Rec'd PCT/PTO 04 OCT 2002

Attorney's Docket No.	Express Mail Label No.	Mailing Date	For PTO Use Only
11145-023US1	EV115424896US	October 4, 2002	Do Not Mark in This Area
Application No. 10/070,794	Filing Date March 8, 2002	Attorney/Secretary Init MMG/kjs	

Title of the Invention
VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

Applicant
Leif Andersson et al.

Enclosures
- Response to Notification of Missing Requirements (1 page)
- Copy of Notification of Missing Requirements (2 pages)
- Combined Declaration and Power of Attorney (4 pages)
- Preliminary Amendment (6 pages)
- Verified Statement Under 37 CFR §1.821(f) (1 page)
- CRF Diskette of Sequence Listing
- Paper Copy of the Sequence Listing (24 pages)
- Petition for Two-Month Extension of Time (1 page)
- Check for $265



Attorney's Docket No.: 11145-023US1

IN THE UNITED STATES RECEIVING OFFICE

Applicant : Leif Andersson et al.
Serial No. : 10/070,794
Filed : March 8, 2002
Title : VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

BOX PCT
Commissioner for Patents
Washington, DC 20231

RESPONSE TO NOTIFICATION OF MISSING REQUIREMENTS

Responsive to the Notification of Missing Requirements under 35 U.S.C. 371 mailed June 4, 2002 (copy enclosed), Applicant as a small entity submits herewith the following:

- ☒ Check for $265 in payment of the $65 surcharge for late filing of the basic filing fee and/or declaration and the two-month extension fee of $200;
- ☒ Combined Declaration and Power of Attorney in compliance with 37 CFR §1.63;
- ☒ Verified Statement Under 37 CFR §1.821(f);
- ☒ Sequence listing in computer readable form;
- ☒ A paper copy of the sequence listing;
- ☒ Preliminary Amendment; and
- ☒ Petition for Two-Month Extension of Time.

It is understood that this perfects the application and no additional papers or filing fees are required. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/4/02

Monica McCormick Graham, Ph.D.
Reg. No. 42,600

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60105919.doc

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV115424896US

October 4, 2002
Date of Deposit

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents, Box PCT
United States Patent and Trademark Office
Washington, DC 20231
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/070,794	Leif Andersson	11145-023US1

INTERNATIONAL APPLICATION NO.	
PCT/EP00/09896	
I.A. FILING DATE	PRIORITY DATE
09/11/2000	

Mark S Ellinger
Fish & Richardson
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402

RECEIVED
JUN 11 2002
PRACTICE SYSTEMS

CONFIRMATION NO. 9287
371 FORMALITIES LETTER

OC000000008210599

Date Mailed: 06/04/2002

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as an Elected Office (37 CFR 1.495):

- U.S. Basic National Fees
- Indication of Small Entity Status
- Biochemical Sequence Listing
- Copy of IPE Report
- Copy of references cited in ISR
- Copy of the International Application
- Copy of the International Search Report
- Preliminary Amendments
- Small Entity Statement

DOCKETED BY PRACTICE SYSTEMS
ACTION: PCT 2m Missing Req.
BASE: 6-4-02
DUE: 8-4-02
DEADLINE: 1-4-03
INITIALS: DAN

Docketed By Billing Secretary
Due Date: 8/4/02
Deadline: 1/4/03
Initials: DAN 6/11/02

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.
- $65 Surcharge for providing the oath or declaration later than the appropriate 30 months months from the priority date (37 CFR 1.492(e)) is required.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTH FROM THE DATE OF THIS NOTICE OR BY 22 or 32 MONTHS (where 37 CFR 1.495 applies) FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

The following items **MUST** be furnished within the period set forth below:

- The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CFR 1.821-1.825 for the following reason(s):

  - A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e).
  - A copy of the "Sequence Listing" in computer readable form has been submitted. The content of the computer readable form, however, does not comply with the requirements of 37 CFR 1.822 and/or 1.832, as indicated on the attached marked-up copy of the "Raw Sequence Listing."
  - APPLICANT MUST PROVIDE:
    - An initial or substitute computer readable form (CRF) of the "Sequence Listing."
    - An initial or substitute paper copy or compact disc of the "Sequence Listing," as well as an amendment directing its entry into the specification.

- For questions regarding compliance to 37 CFR 1.821-1.825 requirements, please contact:

  - For Rules Interpretation, call (703) 308-4216
  - To Purchase PatentIn Software, call (703) 306-2600
  - For PatentIn Software Program Help, call (703) 306-4119.or e-mail at patin21help@uspto.gov or patin3help@uspto.gov

DOCKETED BY PRACTICE SYSTEMS
ACTION: Seq. Listing-2M
BASE: 6-4-02
DUE: 8-4-02
DEADLINE: 1-4-03
INITIALS: AM

SUMMARY OF FEES DUE:

Total additional fees required for this application is **$65** for a Small Entity:

- **$65** Late oath or declaration Surcharge.

- A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e).
- A copy of the "Sequence Listing" in computer readable form has been submitted. The content of the computer readable form, however, does not comply with the requirements of 37 CFR 1.822 and/or 1.832, as indicated on the attached marked-up copy of the "Raw Sequence Listing."

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

MAMIE P PERSON

Telephone: (703) 305-3737

PART 1 - ATTORNEY/APPLICANT COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/070,794	PCT/EP00/09896	11145-023US1

FORM PCT/DO/EO/905 (371 Formalities Notice)

Docketed By Billing Secretary
Due Date: 8/4/02
Deadline: 1/4/03
Initials: DAS 6/11/02

Attorney Docket No.: 11145-023US1

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF, the specification of which:

[] is attached hereto.
[X] was filed on March 8, 2002 as Application Serial No. 10/070,794 and was amended on _____.
[] was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim the benefit under Title 35, United States Code, §119(e)(1) of any United States provisional application(s) listed below:

U.S. Serial No.	Filing Date	Status
none		

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information I know to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. Serial No.	Filing Date	Status
none		

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Country	Application No.	Filing Date	Priority Claimed
WIPO	PCT/EP00/09896	September 11, 2000	[X] Yes [] No
European Patent Office	EP 00401388.4	May 18, 2000	[X] Yes [] No
European Patent Office	EP 99402236.6	September 10, 1999	[X] Yes [] No

Attorney Docket No.: 11145-023US1

Combined Declaration and Power of Attorney

I hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Mark S. Ellinger, Ph.D., Reg. No. 34,812
Wayne E. Willenberg, Reg. No. 28,488
H. Sanders Gwin, Jr., Reg. No. 33,242
Ronald C. Lundquist, Ph.D., Reg. No. 37,875
J. Patrick Finn III, Ph.D., Reg. No. 44,109
Monica McCormick Graham, Ph.D., Reg. No. 42,600
Arlene Hornilla, Reg. No. 44,776
Greg H. Gardella, Reg. No. 46,045
Anton J. Bokal IV, Ph.D., Reg. No. 51,243
William D. Hare, Reg. No. 44,739
Dorothy P. Whelan, Reg. No. 33,814
Richard J. Anderson, Reg. No. 36,732
Stephen R. Schaefer, Reg. No. 37,927
John A. Dragseth, Reg. No. 42,497
M. Angela Parsons, Ph.D., Reg. No. 44,282
J. Richard Soderberg, Reg. No. 43,352
Chad A. Hanson, Ph.D., Reg. No. 44,737
Greg A. McAllister, Reg. No. 47,779
Ruffin B. Cordell, Reg. No. 33,487

Address all telephone calls to Mark S. Ellinger, Ph.D. at telephone number (612) 335-5070.

Address all correspondence to Mark S. Ellinger, Ph.D. at:

FISH & RICHARDSON P.C., P.A.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Full Name of Inventor: LEIF ANDERSSON
Inventor's Signature: _____ Date: 11.09.02
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Citizenship: Sweden
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Inventor's Signature: _____ Date: 14.8.02
Residence Address: Bokelholm
Citizenship: Germany
Post Office Address: Mittelweg 3 c
24802 Bokelholm
Germany

Attorney Docket No.: 11145-023US1

Combined Declaration and Power of Attorney

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Citizenship: Germany
Post Office Address: Schmalholt 1
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Full Name of Inventor: DENIS MILAN
Inventor's Signature: _____ Date: 10-08-2002
Residence Address: Labege
Citizenship: France
Post Office Address: 3 bis, chemin du Tricou
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Full Name of Inventor: ANNIE ROBIC
Inventor's Signature: _____ Date: 29.08.2002
Residence Address: Saint-Orens-De-Gameville
Citizenship: France
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France

Full Name of Inventor: CLAIRE ROGEL-GAILLARD
Inventor's Signature: _____ Date: 5/09/2002
Residence Address: Paris
Citizenship: France
Post Office Address: 156, rue Leon Maurice Nordmann
F-75013 Paris
France

Full Name of Inventor: NATHALIE IANNUCCELLI
Inventor's Signature: _____ Date: 28/08/02
Residence Address: Castanet-Tolosan
Citizenship: France
Post Office Address: 7, boulevard des Alouettes
F-31320 Castanet-Tolosan
France

Attorney Docket No.: 11145-023US1

Combined Declaration and Power of Attorney

Full Name of Inventor: JOËL GELLIN

Inventor's Signature: _____ Date: 28 Août 2002

Residence Address: Auzeville
Citizenship: France
Post Office Address: 8, allee des Amazones
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France

Full Name of Inventor: PASCALE LE ROY

Inventor's Signature: _____ Date: 22 août 2002

Residence Address: Massy
Citizenship: France
Post Office Address: 32, avenue Saint Marc
F-91300 Massy
France

Full Name of Inventor: PATRICK CHARDON

Inventor's Signature: _____ Date: 1 septembre 2002

Residence Address: Vauhallan
Citizenship: France
Post Office Address: 17, rue de Petite Fontaine
F-91430 Vauhallan
France

Attorney's Docket No.: 11145-023US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Leif Andersson et al.
Serial No. : 10/070,794
Filed : March 8, 2002
Title : VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

Art Unit : Unknown
Examiner : Unknown

BOX SEQUENCE
U.S. Patent and Trademark Office
P.O. Box 2327
Arlington, VA 22202

VERIFIED STATEMENT UNDER 37 CFR §1.821(f)

I, Judith A. Wasilkus, declare that I personally prepared the paper and the computer-readable copy of the Sequence Listing filed herewith for the above-identified application and that the content of both is the same.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of The United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: October 4, 2002

Judith A. Wasilkus

Fish & Richardson P.C., P.A.
60 South Sixth Street, Suite 3300
Minneapolis, MN 55402
(612) 335-5070 telephone
(612) 288-9696 facsimile

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CERTIFICATE OF MAILING BY EXPRESS MAIL

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October 4, 2002
Date of Deposit

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225 FRANKLIN STREET
BOSTON, MA 02110-2804

SEQUENCE LISTING UNDER 37 CFR 1.824

Applicant: Leif Andersson et al.

Serial No.: 10/070,794

Filed: March 8, 2002

For: VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

Docket No.: 11145-023US1 Date: 9/23/2002

3.5" Diskette, 1.44 Mb FastSEQ
Windows 95 Micron

Handle with Care

FIRST CLASS MAIL

SEQUENCE LISTING

<110> ANDERSSON, Leif
LOOFT, Christian
KALM, Ernst
MILAN, Denis
ROBIC, Annie
ROGEL-GAILLARD, Claire
IANNUCCELLI, Nathalie
GELLIN, Joël
LE ROY, Pascale
CHARDON, Patrick

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Tyr Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala
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Gly Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val
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Leu Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp
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gaaggggagc caccaggtca gggggaaggt ccccggtcca ggccaactgc tgagtccacc 180

gggctggagg ccacattccc caagaccaca cccttggctc aagctgatcc tgccggggtg 240

ggcactccac caacagggtg ggactgcctc ccctctgact gtacagcctc agctgcaggc 300

tccagcacag atgatgtgga gctggccacg gagttcccag ccacagaggc ctgggagtgt 360

gagctagaag gcctgctgga agagaggcct gccctgtgcc tgtccccgca ggccccattt 420

cccaagctgg gctgggatga cgaactgcgg aaacccggcg cccagatcta c atg cgc 477
Met Arg
1

ttc atg cag gag cac acc tgc tac gat gcc atg gca act agc tcc aag 525
Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser Lys
5 10 15

cta gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt gct 573
Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe Ala
20 25 30

ctg gtg gcc aac ggt gtg cgg gca gcc cct cta tgg gac agc aag aag 621
Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys Lys
35 40 45 50

cag agc ttt gtg ggg atg ctg acc atc act gac ttc atc ctg gtg ctg 669
Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val Leu
55 60 65

cat cgc tac tac agg tcc ccc ctg gtc cag atc tat gag att gaa caa 717
His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu Gln
70 75 80

cat aag att gag acc tgg agg gag atc tac ctg caa ggc tgc ttc aag 765
His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe Lys
85 90 95

cct ctg gtc tcc atc tct cct aat gat agc ctg ttt gaa gct gtc tac 813
Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val Tyr
100 105 110

acc ctc atc aag aac cgg atc cat cgc ctg cct gtt ctt gac ccg gtg 861
Thr Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro Val
115 120 125 130

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tca ggc aac gta ctc cac atc ctc aca cac aaa cgc ctg ctc aag ttc   909
Ser Gly Asn Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys Phe
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ctg cac atc ttt ggt tcc ctg ctg ccc cgg ccc tcc ttc ctc tac cgc   957
Leu His Ile Phe Gly Ser Leu Leu Pro Arg Pro Ser Phe Leu Tyr Arg
            150                 155                 160

act atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gct gtg gtg   1005
Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val Val
        165                 170                 175

ctg gag aca gca ccc atc ctg act gca ctg gac atc ttt gtg gac cgg   1053
Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp Arg
    180                 185                 190

cgt gtg tct gca ctg cct gtg gtc aac gaa tgt ggt cag gtc gtg ggc   1101
Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val Val Gly
195                 200                 205                 210

ctc tat tcc cgc ttt gat gtg att cac ctg gct gcc cag caa acc tac   1149
Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr Tyr
                215                 220                 225

aac cac ctg gac atg agt gtg gga gaa gcc ctg agg cag agg aca cta   1197
Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg Thr Leu
            230                 235                 240

tgt ctg gag gga gtc ctt tcc tgc cag ccc cac gag agc ttg ggg gaa   1245
Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu Gly Glu
        245                 250                 255

gtg atc gac agg att gct cgg gag cag gta cac agg ctg gtg cta gtg   1293
Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val Leu Val
    260                 265                 270

gac gag acc cag cat ctc ttg ggc gtg gtc tcc ctc tcc gac atc ctt   1341
Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile Leu
275                 280                 285                 290

cag gca ctg gtg ctc agc cct gct ggc atc gat gcc ctc ggg gcc tga   1389
Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala
                295                 300                 305

gaagatctga gtcctcaatc ccaagccaac tgcacactgg aagccaatga aggaattgag 1449

aacagcttca tttccccaac cccaatttgc tggttcagct atgattcagg cttcttcagc 1509

cttccaaaat tgcctttgcc ttacttgtgc tcccagaacc cttcgggcat gcccagtgca 1569

ccatgggatg atgaaattaa ggagaacagc tgagtcaagc ttggaggtcc ctgaaccaga 1629

ggcactagga ttaccccagg gccatctgtg ctccatgccc gcccatcccc ttgccgcctg 1689

actgggtcgg atggccccag tgggtttagt cagggcttct ggattcctcg gtttctgggc 1749
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tacctatggc ttcagccttc agctcctggg agtcccagct gttgttccca gcaacgtcgc 1809

cactgccctc ctactctcca ggctttgtca tttcaaggct gctgaaatgc tgcatttcag 1869

gggccaccat ggagcagccg ttatttatag aactgcctgt tggaggtggg gagtcctccc 1929

tccattcttg tccagaaaac tccttagctc tcgcagtgag ccatgttctt agtctccagg 1989

gatggatggc cttgtatatg gacccctgag aatgagcaat tgagaaaaca aaacaaaagg 2049

aacaatccat gaacttagat tttattggtt tcactcaaaa tgctgcagtc atttgacctg 2109

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			20					25					30		
Phe	Ala	Leu	Val	Ala	Asn	Gly	Val	Arg	Ala	Ala	Pro	Leu	Trp	Asp	Ser
		35					40					45			
Lys	Lys	Gln	Ser	Phe	Val	Gly	Met	Leu	Thr	Ile	Thr	Asp	Phe	Ile	Leu
	50					55					60				
Val	Leu	His	Arg	Tyr	Tyr	Arg	Ser	Pro	Leu	Val	Gln	Ile	Tyr	Glu	Ile
65					70					75					80
Glu	Gln	His	Lys	Ile	Glu	Thr	Trp	Arg	Glu	Ile	Tyr	Leu	Gln	Gly	Cys
				85					90					95	
Phe	Lys	Pro	Leu	Val	Ser	Ile	Ser	Pro	Asn	Asp	Ser	Leu	Phe	Glu	Ala
			100					105					110		
Val	Tyr	Thr	Leu	Ile	Lys	Asn	Arg	Ile	His	Arg	Leu	Pro	Val	Leu	Asp
		115					120					125			
Pro	Val	Ser	Gly	Asn	Val	Leu	His	Ile	Leu	Thr	His	Lys	Arg	Leu	Leu
	130					135					140				
Lys	Phe	Leu	His	Ile	Phe	Gly	Ser	Leu	Leu	Pro	Arg	Pro	Ser	Phe	Leu
145					150					155					160
Tyr	Arg	Thr	Ile	Gln	Asp	Leu	Gly	Ile	Gly	Thr	Phe	Arg	Asp	Leu	Ala
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Val	Val	Leu	Glu	Thr	Ala	Pro	Ile	Leu	Thr	Ala	Leu	Asp	Ile	Phe	Val
			180					185					190		

Asp Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val
195 200 205

Val Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln
210 215 220

Thr Tyr Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg
225 230 235 240

Thr Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu
245 250 255

Gly Glu Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val
260 265 270

Leu Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp
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Ala
305

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gtttctccag gtttccagac atccac 26

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gcttctgtct gcccctactt 20

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gtttctaagt tctactgtaa gacacc 26

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gta acc acc agc tca gaa aga agc cat ggg gac cag ggg aac aag gcc   96
Val Thr Thr Ser Ser Glu Arg Ser His Gly Asp Gln Gly Asn Lys Ala
             20                  25                  30

tct aga tgg aca agg cag gag gat gta gag gaa ggg ggg cct ccg ggc   144
Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro Pro Gly
         35                  40                  45

ccg agg gaa ggt ccc cag tcc agg cca gtt gct gag tcc acc ggg cag   192
Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr Gly Gln
     50                  55                  60

gag gcc aca ttc ccc aag gcc aca ccc ttg gcc caa gcc gct ccc ttg   240
Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala Pro Leu
 65                  70                  75                  80

gcc gag gtg gac aac ccc cca aca gag cgg gac atc ctc ccc tct gac   288
Ala Glu Val Asp Asn Pro Pro Thr Glu Arg Asp Ile Leu Pro Ser Asp
                 85                  90                  95

tgt gca gcc tca gcc tcc gac tcc aac aca gac cat ctg gat ctg ggc   336
Cys Ala Ala Ser Ala Ser Asp Ser Asn Thr Asp His Leu Asp Leu Gly
            100                 105                 110

ata gag ttc tca gcc tcg gcg gcg tcg ggg gat gag ctt ggg ctg gtg   384
Ile Glu Phe Ser Ala Ser Ala Ala Ser Gly Asp Glu Leu Gly Leu Val
        115                 120                 125

gaa gag aag cca gcc ccg tgc cca tcc cca gag gtg ctg tta ccc agg   432
Glu Glu Lys Pro Ala Pro Cys Pro Ser Pro Glu Val Leu Leu Pro Arg
    130                 135                 140

ctg ggc tgg gat gat gag ctg cag aag ccg ggg gcc cag gtc tac atg   480
Leu Gly Trp Asp Asp Glu Leu Gln Lys Pro Gly Ala Gln Val Tyr Met
145                 150                 155                 160

cac ttc atg cag gag cac acc tgc tac gat gcc atg gcg acc agc tcc   528
His Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser
                165                 170                 175

aaa ctg gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt   576
Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe
            180                 185                 190

gcc ctg gtg gcc aac ggc gtc cga gcg gca cct ttg tgg gac agc aag   624
Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys
        195                 200                 205
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aag cag agc ttc gtg ggg atg ctg acc atc aca gac ttc atc ttg gtg   672
Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val
    210                 215                 220

ctg cac cgc tat tac agg tcc ccc ctg gtc cag atc tac gag att gaa   720
Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu
225                 230                 235                 240

gaa cat aag att gag acc tgg agg gag atc tac ctt caa ggc tgc ttc   768
Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe
                245                 250                 255

aag cct ctg gtc tcc atc tct ccc aat gac agc ctg ttc gaa gct gtc   816
Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val
            260                 265                 270

tac gcc ctc atc aag aac cgg atc cac cgc ctg ccg gtc ctg gac cct   864
Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro
        275                 280                 285

gtc tcc ggg gct gtg ctc cac atc ctc aca cat aag cgg ctt ctc aag   912
Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys
    290                 295                 300

ttc ctg cac atc ttt ggc acc ctg ctg ccc cgg ccc tcc ttc ctc tac   960
Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu Tyr
305                 310                 315                 320

cgc acc atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gcc gtg  1008
Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val
                325                 330                 335

gtg ctg gaa acg gcg ccc atc ctg acc gca ctg gac atc ttc gtg gac  1056
Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp
            340                 345                 350

cgg cgt gtg tct gcg ctg cct gtg gtc aac gaa act gga cag gta gtg  1104
Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val Val
        355                 360                 365

ggc ctc tac tct cgc ttt gat gtg atc cac ctg gct gcc caa caa aca  1152
Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr
    370                 375                 380

tac aac cac ctg gac atg aat gtg gga gaa gcc ctg agg cag cgg aca  1200
Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg Thr
385                 390                 395                 400

ctg tgt ctg gaa ggc gtc ctt tcc tgc cag ccc cac gag acc ttg ggg  1248
Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu Gly
                405                 410                 415

gaa gtc att gac cgg att gtc cgg gaa cag gtg cac cgc ctg gtg ctc  1296
Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val Leu
            420                 425                 430
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gtg gat gag acc cag cac ctt ctg ggc gtg gtg tcc ctc tct gac atc   1344
Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile
        435                 440                 445

ctt cag gct ctg gtg ctc agc cct gct gga att gat gcc ctc ggg gcc   1392
Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala
    450                 455                 460

tga gaaccttgga acctttgctc tcaggccacc tggcacacct ggaagccagt        1445

465

gaagggagcc gtggactcag ctctcacttc ccctcagccc cacttgctgg tctggctctt 1505

gttcaggtag gctccgcccg gggcccctgg cctcagcatc agcccctcag tctccctggg 1565

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gccttgtgaa atctaccagc atcaagactc actgtgggac cactgctttg tcccattctc 1685

agctgaaatg atggagggcc tcataagagg ggtggacagg gcctggagta gaggccagat 1745

cagtgacgtg ccttcaggac ctccggggag ttagagctgc cctctctcag ttcagttccc 1805

ccctgctgag aatgtccctg gaaggaagcc agttaataaa ccttggttgg atggaatttg 1865

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             20                  25                  30
Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro Pro Gly
         35                  40                  45
Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr Gly Gln
     50                  55                  60
Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala Pro Leu
 65                  70                  75                  80
Ala Glu Val Asp Asn Pro Pro Thr Glu Arg Asp Ile Leu Pro Ser Asp
                 85                  90                  95
Cys Ala Ala Ser Ala Ser Asp Ser Asn Thr Asp His Leu Asp Leu Gly
            100                 105                 110
Ile Glu Phe Ser Ala Ser Ala Ala Ser Gly Asp Glu Leu Gly Leu Val
        115                 120                 125
Glu Glu Lys Pro Ala Pro Cys Pro Ser Pro Glu Val Leu Leu Pro Arg
    130                 135                 140
Leu Gly Trp Asp Asp Glu Leu Gln Lys Pro Gly Ala Gln Val Tyr Met
145                 150                 155                 160
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His Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser
                165                 170                 175
Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe
            180                 185                 190
Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys
        195                 200                 205
Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val
    210                 215                 220
Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu
225                 230                 235                 240
Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe
                245                 250                 255
Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val
            260                 265                 270
Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro
        275                 280                 285
Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys
    290                 295                 300
Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu Tyr
305                 310                 315                 320
Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val
                325                 330                 335
Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp
            340                 345                 350
Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val Val
        355                 360                 365
Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr
    370                 375                 380
Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg Thr
385                 390                 395                 400
Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu Gly
                405                 410                 415
Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val Leu
            420                 425                 430
Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile
        435                 440                 445
Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala
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Met Ser Phe Leu Glu Gln Glu Asn Ser Ser Ser Trp Pro Ser Pro Ala
  1               5                  10                  15

gtg acc agc agc tca gaa aga atc cgt ggg aaa cgg agg gcc aaa gcc   96
Val Thr Ser Ser Ser Glu Arg Ile Arg Gly Lys Arg Arg Ala Lys Ala
             20                  25                  30
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ttg aga tgg aca agg cag aag tcg gtg gag gaa ggg gag cca cca ggt   144
Leu Arg Trp Thr Arg Gln Lys Ser Val Glu Glu Gly Glu Pro Pro Gly
          35                  40                  45

cag ggg gaa ggt ccc cgg tcc agg cca act gct gag tcc acc ggg ctg   192
Gln Gly Glu Gly Pro Arg Ser Arg Pro Thr Ala Glu Ser Thr Gly Leu
      50                  55                  60

gag gcc aca ttc ccc aag acc aca ccc ttg gct caa gct gat cct gcc   240
Glu Ala Thr Phe Pro Lys Thr Thr Pro Leu Ala Gln Ala Asp Pro Ala
 65                  70                  75                  80

ggg gtg ggc act cca cca aca ggg tgg gac tgc ctc ccc tct gac tgt   288
Gly Val Gly Thr Pro Pro Thr Gly Trp Asp Cys Leu Pro Ser Asp Cys
                 85                  90                  95

aca gcc tca gct gca ggc tcc agc aca gat gat gtg gag ctg gcc acg   336
Thr Ala Ser Ala Ala Gly Ser Ser Thr Asp Asp Val Glu Leu Ala Thr
            100                 105                 110

gag ttc cca gcc aca gag gcc tgg gag tgt gag cta gaa ggc ctg ctg   384
Glu Phe Pro Ala Thr Glu Ala Trp Glu Cys Glu Leu Glu Gly Leu Leu
        115                 120                 125

gaa gag agg cct gcc ctg tgc ctg tcc ccg cag gcc cca ttt ccc aag   432
Glu Glu Arg Pro Ala Leu Cys Leu Ser Pro Gln Ala Pro Phe Pro Lys
    130                 135                 140

ctg ggc tgg gat gac gaa ctg cgg aaa ccc ggc gcc cag atc tac atg   480
Leu Gly Trp Asp Asp Glu Leu Arg Lys Pro Gly Ala Gln Ile Tyr Met
145                 150                 155                 160

cgc ttc atg cag gag cac acc tgc tac gat gcc atg gca act agc tcc   528
Arg Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser
                165                 170                 175

aag cta gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt   576
Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe
            180                 185                 190

gct ctg gtg gcc aac ggt gtg cgg gca gcc cct cta tgg gac agc aag   624
Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys
        195                 200                 205

aag cag agc ttt gtg ggg atg ctg acc atc act gac ttc atc ctg gtg   672
Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val
    210                 215                 220

ctg cat cgc tac tac agg tcc ccc ctg gtc cag atc tat gag att gaa   720
Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu
225                 230                 235                 240

caa cat aag att gag acc tgg agg gag atc tac ctg caa ggc tgc ttc   768
Gln His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe
                245                 250                 255
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Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu Gly
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gaa gtg atc gac agg att gct cgg gag cag gta cac agg ctg gtg cta   1296
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gtg gac gag acc cag cat ctc ttg ggc gtg gtc tcc ctc tcc gac atc   1344
Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile
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Gln Glu Met Ser Phe Leu Glu Gln Gly Glu Ser Arg Ser Trp Pro Ser
     50                  55                  60

Arg Ala Val Thr Thr Ser Ser Glu Arg Ser His Gly Asp Gln Gly Asn
 65                  70                  75                  80

Lys Ala Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro
                 85                  90                  95

Pro Gly Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr
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Gly Gln Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala
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Attorney's Docket No.: 11145-023US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Leif Andersson et al.
Serial No. : 10/070,794
Filed : March 8, 2002
Title : VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF

Art Unit : Unknown
Examiner : Unknown

BOX PCT
Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the specification:

Replace the paragraph beginning at page 30, line 35, with the following rewritten paragraph:

– A part of *PRKAG3* including codon 41 was amplified in 10 μl reactions containing 100 ng genomic DNA, 0.2 mM dNTPs, 1.5 mM $MgCl_2$, 4.0 pmol of both forward (AMPKG3F3:5' -GGAGCAAATGTGCAGACAAG-3') (SEQ ID NO:33) and reverse (AMPKG3R2:5' -CCCACGAAGCTCTGCTTCTT-3') (SEQ ID NO:34) primer, 10% DMSO, 1 U of *Taq* DNA polymerase and reaction buffer (ADVANCED BIOTECH, London, UK). The cycling conditions included an initial incubation at 94° for 5 min followed by 3 cycles at 94°C (1 min), 57°C (1 min) and 72°C (1 min), and 35 cycles of 94°C (20 sec), 55°C (30 sec) and 72°C (30 sec). Allele discrimination at nucleotide position 122 was done using the oligonucleotide ligation assay (OLA, LANDEGREN, *et al.*, Science, 241, 1077-1080, 1988). The OLA method was carried out as a gel-based assay. Each 10 μl OLA reaction contained 0.5 pmol of each probe SNPRN-A (5'Hex-TGGCCAACGGCGTCCA-3') (SEQ ID NO:35), SNPRN-G (5'ROX-GGCCAACGGCGTCCG-3') (SEQ ID NO:36) and SNRPN-Common (5'phosphate-AGCGGCACCTTTGTGAAAAAAAAAA-3') (SEQ ID NO:37), 1.5 U of thermostable AMPLIGASE and reaction buffer (EPICENTRE TECHNOLOGIES, Madison, WI) and 0.5 μl of

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October 4, 2002
Date of Deposit

the AMPKG3F3/AMPKG3R2 PCR product. After an initial incubation at 95°C for 5 min, the following thermocycling profile was repeated 10 times: denaturation at 95°C (30 sec), and probe annealing and ligation at 55°C (90 sec). After OLA cycling, 1 μl of product was heat denatured at 94°C (3 min), cooled on ice, and loaded onto 6% polyacrylamide denaturing gel for electrophoresis on an ABI377 DNA sequencer (PERKIN ELMER, Foster City, USA). The resulting fragment lengths and peak fluorescence were analyzed using GENESCAN software (PERKIN ELMER, Foster City, USA). --

Replace the paragraph beginning at page 32, line 5, with the following rewritten paragraph:

-- A microsatellite 127B1 (*MS127B1*) was cloned from BAC 127G7 containing pig *PRKAG3*. The BAC clone was digested with *Sau*3AI and the restriction fragments subcloned into the *Bam*HI site of pUC18. The resulting library was probed with a $(CA)_{15}$ oligonucleotide probe labeled with [γ-32P]-dATP. Strongly hybridizing clones were sequenced and primers for PCR amplification of microsatellite loci were designed. Ten μl PCR reactions were performed containing 100 ng genomic DNA, 0.2 mM dNTPs, 1.5 mM $MgCl_2$, 4.0 pmol of both forward (MS127B1F:5' -Fluorescein-CAAACTCTTCTAGGCGTGT-3') (SEQ ID NO:38) and reverse (MS127B1R:5' -GTTTCTGGAACTTCCATATGCCATGG-3') (SEQ ID NO:39) primers, and 1 U of *Taq* DNA polymerase and reaction buffer (ADVANCED BIOTECH, London, UK). The cycling conditions included an initial incubation at 94°C for 5 min followed by 3 cycles at 94°C (1 min), 57°C (1 min) and 72°C (1 min), and 35 cycles of 94°C (20 sec), 55°C (30 sec) and 72°C (30 sec). The PCR products (0.3 μl) were separated using 4% polyacrylamide denaturing gel electrophoresis on an ABI377 DNA sequencer (PERKIN ELMER, Foster City, USA). The resulting fragment lengths were analyzed using the GENESCAN and GENOTYPER software (PERKIN ELMER, Foster City, USA). --

Replace the paragraph beginning at page 33, line 13, with the following rewritten paragraph:

-- Sequence of primers used to amplify the *RN* mutation region:

RNU: 5' GGGAACGATTCACCCTCAAC 3' (SEQ ID NO:40)

RNL: 5' AGCCCCTCCTCACCCACGAA 3' (SEQ ID NO:41) --

Replace the paragraph beginning at page 33, line 24, with the following rewritten paragraph:

-- The sequence of the RNL modified primer including a control tail with a *Bsr*BI site is:

RNLBsrA14: 5' $A_5C_2A_7$CCGCTCAGCCCCTCCTCACCCACGAA 3' (SEQ ID NO:42) --

Please replace the sequence listing with the substitute sequence listing.

Applicant : Leif Andersson et a[redacted]
Serial No. : 10/070,794
Filed : March 8, 2002
Page : 4

Attorney's [redacted]et No.: 11145-023US1

REMARKS

Applicants have amended the specification to incorporate sequence identifiers and correct typographical errors. Applicants have amended the sequence listing to include sequence identifiers for the sequences on pages 31-33. No new matter has been added.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined. Payment is enclosed for the Petition for Extension of Time and declaration surcharge fees. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/4/02

Monica McCormick Graham, Ph.D.
Reg. No. 42,600

Fish & Richardson P.C., P.A.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

60106775.doc

Version with markings to show changes made

In the specification:

Paragraph beginning at page 30, line 35, has been amended as follows:

A part of *PRKAG3* including codon 41 was amplified in 10 μl reactions containing 100 ng genomic DNA, 0.2 mM dNTPs, 1.5 mM $MgCl_2$, 4.0 pmol of both forward (AMPKG3F3:5' – GGAGCAAATGTGCAGACAAG-3') (SEQ ID NO:33) and reverse (AMPKG3R2:5' -CCCACGAAGCTCTGCTTCTT-3') (SEQ ID NO:34) primer, 10% DMSO, 1 U of *Taq* DNA polymerase and reaction buffer (ADVANCED BIOTECH, London, UK). The cycling conditions included an initial incubation at 94° for 5 min followed by 3 cycles at 94°C (1 min), 57°C (1 min) and 72°C (1 min), and 35 cycles of 94°C (20 sec), 55°C (30 sec) and 72°C (30 sec). Allele discrimination at nucleotide position 122 was done using the oligonucleotide ligation assay (OLA, LANDEGREN, *et al.*, Science, 241, 1077-1080, 1988). The OLA method was carried out as a gel-based assay. Each 10 μl OLA reaction contained 0.5 pmol of each probe SNPRN-A (5'Hex-TGGCCAACGGCGTCCA-3') (SEQ ID NO:35), SNPRN-G (5'ROX-GGCCAACGGCGTCCG-3') (SEQ ID NO:36) and SNRPN-Common (5'phosphate-AGCGGCACCTTTGTGAAAAAAAAAA-3') (SEQ ID NO:37), 1.5 U of thermostable AMPLIGASE and reaction buffer (EPICENTRE TECHNOLOGIES, Madison, WI) and 0.5 μl of the AMPKG3F3/AMPKG3R2 PCR product. After an initial incubation at 95°C for 5 min, the following thermocycling profile was repeated 10 times: denaturation at 95°C (30 sec), and probe annealing and ligation at 55°C (90 sec). After OLA cycling, 1 μl of product was heat denatured at 94°C (3 min), cooled on ice, and loaded onto 6% polyacrylamide denaturing gel for electrophoresis on an ABI377 DNA sequencer (PERKIN ELMER, Foster City, USA). The resulting fragment lengths and peak fluorescence were [analysed] analyzed using GENESCAN software (PERKIN ELMER, Foster City, USA).

Paragraph beginning at page 32, line 5, has been amended as follows:

A microsatellite 127B1 (*MS127B1*) was cloned from BAC 127G7 containing pig *PRKAG3*. The BAC clone was digested with *Sau*3AI and the restriction fragments subcloned

into the *Bam*HI site of pUC18. The resulting library was probed with a $(CA)_{15}$ oligonucleotide probe [labelled] labeled with [γ-32P]-dATP. Strongly [hybridising] hybridizing clones were sequenced and primers for PCR amplification of microsatellite loci were designed. Ten μl PCR reactions were performed containing 100 ng genomic DNA, 0.2 mM dNTPs, 1.5 mM $MgCl_2$, 4.0 pmol of both forward (MS127B1F:5' -Fluorescein-CAAACTCTTCTAGGCGTGT-3') (SEQ ID NO:38) and reverse (MS127B1R:5' -GTTTCTGGAACTTCCATATGCCATGG-3') (SEQ ID NO:39) primers, and 1 U of *Taq* DNA polymerase and reaction buffer (ADVANCED BIOTECH, London, UK). The cycling conditions included an initial incubation at 94°C for 5 min followed by 3 cycles at 94°C (1 min), 57°C (1 min) and 72°C (1 min), and 35 cycles of 94°C (20 sec), 55°C (30 sec) and 72°C (30 sec). The PCR products (0.3 μl) were separated using 4% polyacrylamide denaturing gel electrophoresis on an ABI377 DNA sequencer (PERKIN ELMER, Foster City, USA). The resulting fragment lengths were [analysed] analyzed using the GENESCAN and GENOTYPER software (PERKIN ELMER, Foster City, USA).

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Sequence of primers used to amplify the *RN* mutation region:

RNU: 5' GGGAACGATTCACCCTCAAC 3' (SEQ ID NO:40)

RNL: 5' AGCCCCTCCTCACCCACGAA 3' (SEQ ID NO:41)

Paragraph beginning at page 33, line 24, has been amended as follows:

The sequence of the RNL modified primer including a control tail with a *Bsr*BI site is:

RNLBsrA14: 5' $A_5C_2A_7$CCGCTCAGCCCCTCCTCACCCACGAA 3' (SEQ ID NO:42)

Attorney's Docket No.: 11145-023US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Leif Andersson et al.	Art Unit	: Unknown
Serial No.	: 10/070,794	Examiner	: Unknown
Filed	: March 8, 2002		
Title	: VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF		

BOX PCT
Commissioner for Patents
Washington, DC 20231

PETITION FOR TWO-MONTH EXTENSION OF TIME

Pursuant to 37 CFR §1.136, applicants hereby petition that the period for response to the action dated June 4, 2002, be extended for two months to and including October 4, 2002.

Payment is enclosed for the required fee of $200. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/4/02

Monica McCormick Graham, Ph.D.
Reg. No. 42,600

Fish & Richardson P.C., P.A.
60 South Sixth Street
Suite 3300
Minneapolis, MN 55402
Telephone: (612) 335-5070
Facsimile: (612) 288-9696

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Attorney's Docket No. 11145-023US1	Express Mail Label No. EV115424896US	Mailing Date October 4, 2002	*For PTO Use Only* *Do Not Mark in This Area*
Application No. 10/070,794	Filing Date March 8, 2002	Attorney/Secretary Init MMG/kjs	
Title of the Invention VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING THE SAME, AND USES THEREOF			
Applicant Leif Andersson et al.			
Enclosures - Response to Notification of Missing Requirements (1 page) - Copy of Notification of Missing Requirements (2 pages) - Combined Declaration and Power of Attorney (4 pages) - Preliminary Amendment (6 pages) - Verified Statement Under 37 CFR §1.821(f) (1 page) - CRF Diskette of Sequence Listing - Paper Copy of the Sequence Listing (24 pages) - Petition for Two-Month Extension of Time (1 page) - Check for $265			